

CLAIMS

We claim:

1. A horse shoe primarily composed of one or more kinds of plastic or rubber material, and such that there is a harder and stiffer part (to give structural strength and where needed for nail-retention and other factors), and also so that there is a softer more flexible part on the interior portion of the sole-side of the shoe (for the primary purpose of avoiding pressure points on the sole of the horse's foot).
 - (a) A horse shoe as in claim 1 wherein the hard and soft parts are made from two types of plastic or rubber, one with a higher "durometer" and "flexural modulus" and the other with a lower "durometer" and "flexural modulus".
 - (b) A horse shoe as in claim 1 wherein the same material is used to achieve both the "hard" and "soft" parts; in this case, by use of geometric shape, a region of the sole-side of the shoe is made to have a lower effective stiffness (e.g. by having voids in the material so it deforms more easily in this region).
 - (c) A method for attaching and using fabric flaps with a horse shoe primarily composed of plastic or rubber such that the outer contour of the shoe may be shaped (e.g. by grinding, rasping, etc) as needed without disturbing the attachment or function of these flaps, and so that these fabric flaps can be attached to the outer wall of the hoof to aid in securing the shoe to the hoof.
 - (d) A horse shoe composed of plastic or rubber material with small "stand-offs" on the sole-side for the purpose of holding the shoe a small distance from the horse's hoof while gluing in order to achieve a uniform thickness of glue between hoof and shoe.
 - (e) A horse shoe composed of plastic or rubber which includes "injection ports" for the easy addition of a liquid packing material which after injection becomes firmer and is used to fill the voids between the shoe and the hoof.

2. A method for computing an optimal “toe bevel angle” based on biomechanics and its embodiment in a horse shoe composed primarily of plastic or rubber.
3. A horse shoe primarily made of plastic or rubber with a tread pattern on the ground side which is composed of elongated islands of material such that they form a roughly circular pattern about the center of the shoe so that the longer aspect of these islands resists slipping in lateral translations of the shoe, but allow a somewhat easier rotational slip about the center of the shoe.